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Term: (print$6 or record$4) same(color or hue or tint or tincture or chroma$7) near4 (chart or pattern or target or table) and (patch or start) near4

Display: 10 **Documents in Display Format:** - **Starting with Number** 1

Generate: ○ Hit List ◉ Hit Count ○ Side by Side ○ Image

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Search History

DATE: Tuesday, June 15, 2004 Printable Copy Create Case

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	DB=PGPB,USPT,USOC,EPAB,JPAB,DWPI; PLUR=YES; OP=OR		
L4	(print$6 or record$4) same(color or hue or tint or tincture or chroma$7) near4 (chart or pattern or target or table) and (patch or start) near4 (code or identi$6) and @ad<20001110	196	L4
L3	(print$6 or record$4) and (color or hue or tint or tincture or chroma$7) near4 (chart or pattern or target or table) and (patch or start) near4 (code or indenti$6) and @ad<20001110	379	L3
L2	(color or hue or tint or tincture or chroma$7) near4 (chart or pattern or target or table) same (patch or start) near4 (code or indenti$6) and @ad<20001110	36	L2
L1	(color or hue or tint or tincture or chroma$7) near5 (chart or pattern or target or table) and (patch or start) near4 (code or indenti$6) and @ad<20001110	483	L1

END OF SEARCH HISTORY

First Hit Fwd Refs

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L4: Entry 121 of 196 File: USPT Nov 19, 1996

B

DOCUMENT-IDENTIFIER: US 5576835 A
TITLE: Method for run-length coding for shortening transmission time

Application Filing Date (1):
19930903

Brief Summary Text (7):
In gray-scale scanning, the gray values are divided into gray steps and converted in more or less close patterns of black and white dots. In this way, as is known from the Dither printing process, a corresponding gray step is taken in by the eye. In the coding of color images and patterns expensive processes have hitherto been necessary. To some extent similar to the coding in the NTSC, PAL and SECAM systems.

Detailed Description Text (5):
For transmission one can also combine several lines together and transmit them in code multiplex. One could then also distribute the EOL and other marks on the combined lines. The code-multiplex combination can, for example take place in that the symbols of the individual lines are binary-coded, synchronized and combined in parallel and combined with a multi-value code word. Six lines are combined together in accordance with this method in FIG. 10. The code word S1 is then made up of the binary code elements 100100, S2 of 001000, S3 of 100011, and so on. The start and stop and also if necessary other codes can be spread over all the lines. Examples of this are illustrated in FIG. 11 and 12. These characteristic marks can be identified by one or several parallel code words. In FIG. 11 there are 4.times.6 binary code elements. In FIG. 12, four lines are combined together, 4.times.4 code elements being provided for the start and stop marks. One can also assign a special code to the last line. A further reduction of the transmission time can be achieved in that lines of the same code length or similar code length can be combined by code-multiplexing with the interposition of a store, a line mark being necessary for each line. With DIN A4 documents there are eg. 1100 lines. Therefore 1100 combinations must be provided for the line coding. These could however at the same time also be used as the EOL marks. The code-multiplex combination of the symbols of numbers is achieved advantageously with a high-value, eg. quaternary or octonary coding. In FIG. 13 there is illustrated an example of a quaternary coding. Eight bits are necessary for coding 256 combinations, and these can be represented using eight binary code elements. One can also bring together the eight code elements into four dibits, so that only four code elements are necessary for coding the eight bits. In the example of a symbol coding for 10 white, 10 black, for the thousands and other symbols 32 combinations, that is to say five bits, are necessary. With quaternary coding one will always combine two symbols in series or parallel, so that dibits can always be formed. With a four-stage coding one then obtains, with five positions, four to the power of five, that is to say 1024 combinations, and therefore ten bits. If binary half-wave code elements are provided in FIG. 2, five half-waves are necessary respectively with the two coded alternating currents. All the lines having only white can have their own short code. One can also insert in advance the code word for the white lines and in the subsequent part then only raise the line numbers of the white lines and give a special mark again at the end of the white lines. This method of transmitting the white lines can be employed in all known coding and transmission methods. Of course

white lines do not need to be printed so that one only needs to provide one further circuit at the receiver. Such electronic circuits are known from circuits of electronic typewriters and need not be further discussed.

Detailed Description Text (15):
Based on the requirements, it is possible to use the same code words for white ws and black sw for the run lengths. Each line must always start with a white run length. If the line starts with the color black, the white run length zero is transmitted first. In addition, the code word EOL is transmitted at the start of each page and the end of each line. With this, the synchronization of the white/black sequence is also fixed, which is of particular importance during evaluation. The frequency of the appearance of lengths was taken into account during number coding. If it is intended to transmit written material, short run lengths, such as 2, 3, 4 often appear with black. Correspondingly small code words, such as 11, 10, 011 were assigned to these. As a consequence, frequency will be taken into consideration when using the same code words for white and black. In accordance with the present table, the numbers 2 to 7 occur with the same frequency with white, while with black 2 and 3 occur most frequently. Thus, in accordance with the invention, with black the shortest code words are used for the numbers 2 and 3, these are used with white for the number 4 and 5, for example. Half of the codings are then no longer required. Coding of the larger numbers will no longer be provided with black, because they have twelve digits, while they have only eight digits with white. In case of a greater horizontal resolution, a corresponding frequency adaptation will of course be made. If a change from eight to sixteen pixels per millimeter is made, 2 sw is increased to 4 sw pixels, i.e. the number 4 than occurs most frequently with black. The coding possibilities for some of the most frequently occurring numbers are shown below.

First Hit Fwd Refs

Generate Collection

L4: Entry 111 of 196 File: USPT Nov 4, 1997

DOCUMENT-IDENTIFIER: US 5684885 A
TITLE: Binary glyph codes based on color relationships

Application Filing Date (1):
19950927

Brief Summary Text (7):
U.S. Pat. No. 5,291,243 discloses a system for printing security documents which have a copy detection or tamper resistant in plural colors. The described method includes electronic generation of a safety background image pattern with first and second interposed color patterns. The color patterns are preferably oppositely varying density patterns of electronically generated pixel dot images with varying spaces therebetween. The optical effects created by the color patterns are particularly detectable by copy detection or tamper resistance systems.

Detailed Description Text (25):
It may be desirable that the amount of surface area on the sheet S on which the average color c is established be made as small as necessary for enabling the system to distinguish between the different types of color patches. Ideally, the arrangement shown in FIG. 6 could be embodied in a rendering of a color photograph: any area in the photograph of a minimum size of a uniform color could be used as the "carrier" area. A more sophisticated system could be able to identify local average colors within a complex color image, and then identify the information bearing patches within the local areas of average colors. In this way, a single document may include a number of different average colors in different areas. Alternately, a reading system may already have the underlying carrier data (such as of a color photograph) pre-stored in memory, and can just compare the data from a scanned-in document to derive the data-bearing color patches.

First Hit Fwd Refs

Generate Collection

L4: Entry 128 of 196 File: USPT Feb 13, 1996

DOCUMENT-IDENTIFIER: US 5491568 A
TITLE: Method and apparatus for calibrating a digital color reproduction apparatus

Abstract Text (1):
A digital color reproduction apparatus of the type having a scanner for scanning a color image to produce scanner color signals representing the color image, a digital image processor for processing the scanner color signals to produce printer color signals, and a printer responsive to the printer color signals for reproducing the color image is said to be "closed" when the original color image and the reproduced color image are on the same medium. For a closed color reproduction system, the color transform from scanner color signals to printer color signals can be implemented using the tri-linear interpolation based on a 3D calibration lookup table. The 3D calibration lookup table can be derived automatically by: a) determining the relationship between equal printer color signals and averaged scanner color signals; b) based on the determined relationship, generating a set of color patches on the printer that are uniformly distributed in scanner color signal space; c) scanning the color patches to generate a lookup table relating printer color signals to scanner color signals; and d) inverting the lookup table to generate the calibration lookup table.

Application Filing Date (1):
19940615

Brief Summary Text (10):
It is the object of the present invention to provide a simplified method to derive a 3D LUT to convert scanner color signals to printer color signals automatically for a closed color reproduction system. The object is achieved according to the present invention by: a) determining the relationship between equal printer color signals and averaged scanner color signals; b) based on the determined relationship, generating a set of color patches on the printer that are uniformly distributed in scanner color signal space; c) scanning the color patches to generate a lookup table relating printer color signals to scanner color signals; and d) inverting the lookup table to generate the calibration lookup table.

Detailed Description Text (6):
Returning now to FIG. 10, the step (22) of generating a set of uniformly distributed color patches will be described. The curve through the 26 points shown in FIG. 4 gives a one-to-one corresponding relationship between equal printer code values and the average scanner code values. The range (Avgmin, Avgmax) is divided into N-1 intervals of equal length, the corresponding N CMY code values, denoted by S.sub.0, S.sub.1, . . . , S.sub.N-1, are determined from ~~the graph. Based on the~~ N values, we can produce N.times.N.times.N (N.sup.3) color patches with code values:

Detailed Description Text (7):
An image 40 containing the resulting N.sup.3 color patches CP.sub.1, CP.sub.2, . . . CP.sub.N.sup.3 is illustrated in FIG. 5. Selecting color patches in this way has the following advantages: (1) the N.sup.3 color patches cover a full range of the output device gamut; (2) the code values of the color patches are lattice points in the output device signal space; (3) the scanned code values of these color patches are uniformly distributed in the input device signal space. Depending on

applications, N can be a number between 5 to 11, and is preferably 9.

CLAIMS:

1. A method of calibrating a digital color reproduction apparatus having a scanner for scanning a color image to produce scanner color signals representing said color image, a digital image processor for processing the scanner color signals to produce printer color signals, and a printer responsive to said printer color signals for printing a reproduced color image, the digital image processor including a calibration lookup table that maps the scanner color signals to the printer color signals when the original color image and the reproduced color image are on a same medium, comprising the steps of:

a) determining a relationship between equal printer color signals and averaged scanner color signals;

b) based on the determined relationship, generating a set of color patches on the printer that are uniformly distributed in scanner color signal space;

c) scanning the color patches to generate a lookup table relating printer color signals to scanner color signals; and

d) inverting said lookup table to generate said calibration lookup table.

5. A digital color reproduction apparatus comprising:

a) a scanner for scanning a color image to produce scanner color signals representing said color image;

b) a digital image processor for processing the scanner color signals to produce printer color signals;

c) a printer responsive to said printer color signals for printing a reproduced color image; and

d) said digital image processor including a calibration lookup table that maps the scanner color signals to the printer color signals when said color image and the reproduced color image are on a same medium, and means for automatically generating said calibration lookup table, including:

i) means for determining a relationship between equal printer color signals and averaged scanner color signals;

ii) means for generating a set of color patches on the printer that are uniformly distributed in scanner color signal space, based on the determined relationship;

iii) means for scanning the color patches to generate a lookup table relating printer color signals to scanner color signals; and

iv) means for inverting said lookup table to generate said calibration lookup table.

First Hit Fwd Refs

1

Generate Collection

L4: Entry 71 of 196 File: USPT Dec 19, 2000

DOCUMENT-IDENTIFIER: US 6163389 A
TITLE: Digital photofinishing system including digital image processing of alternative capture color photographic media

Application Filing Date (1):
19980625

Detailed Description Text (51):
This value of beta is then applied to a square wave target to measure the modulation transfer function for the final processed image. The test to establish the full system MTF response is as follows. First, a target is photographed using a color negative film. The original target has a square wave pattern of approximately 40% modulation. The spatial frequency response values for each frequency of square wave pattern is 100% through all of the system visible frequencies. The film image was scanned on the digital scanner to produce a 1024.times.1536 pixel digital image for subsequent processing. This image was processed through our SBA plus sharpening path and printed. The spatial frequency response of the final print was measured with a high resolution microdensitometer, and the data analyzed using a harmonic analysis process. Table 1 lists the red, green, and blue response measured in this test (average of four samples) and represents the maximum MTF before significant artifact production occurs.

Detailed Description Text (62):
A series of uniform patches (at least 18) spanning the full range of printer code values are printed through an initial calibration LUT. This initial LUT must cover all those D/A count values that produce density on the print. The patch densities on the print are measured. With the initial LUT, the list of code values, respective densities of those patches, and the aim curve, a new calibration LUT can be calculated which should modify printing behavior according to the calibration aim.

First Hit Fwd Refs

Generate Collection

L4: Entry 32 of 196 File: USPT Oct 29, 2002

DOCUMENT-IDENTIFIER: US 6473199 B1
TITLE: Correcting exposure and tone scale of digital images captured by an image capture device

Application Filing Date (1):
19981218

Detailed Description Text (6):
FIGS. 2A-B are block diagrams of a process that are presently used to produce a profile that characterizes a particular printer-media combination. A computer 26 is used to print a characterization target 28 consisting of color and monochrome patches. The printed characterization target 32 is then measured with a spectrophotometer 34 to obtain spectral data for each of the patches contained within the characterization target (see FIG. 2A). Using a computer 26 and proprietary software, a printer-media profile is generated that characterizes the printer-media combination. The printer-media profile 36 generated for the particular printer-media combination can then be saved for future use (see FIG. 2B).

Detailed Description Text (8):
FIG. 4 is a block diagram for creating a series of printer tone scale transforms. The image of the test chart 50 is captured by the digital image capture device 52 and transferred to a digital computer 26 where the average input color code values of each neutral patch of the test chart are measured using an image processing program such as Adobe Photoshop. These input code values are then digitally transformed to the aim output code values 54. A separate transform is constructed for each of the exposure conditions which may be saved as separate transforms 56 to correct a digital image for exposure and tone scale errors (see FIG. 4).

Detailed Description Text (33):
A. Print the test target created in Step 2 (Create a tone scale calibration test target for the printer) using the following steps: 1) Open the test target created in Step 2 (Create a tone scale calibration test target for the printer) in Adobe Photoshop. Make sure the test target is still in LAB color space by going to EMAGE-MODE. 2) Send the test target to the printer by first going to WINDOWS-SHOW ACTIONS and navigate to the ACTION item that is: lab2rgb, press the arrow to run the ACTION. (The Kodak ColorFlow Action Items are loaded from the Kodak ColorFlow Production Tools Software.) 3) Running the ACTION will prompt a user to specify a Source: pslabpcs.pf and Destination: the ColorFlow ICC Printer-media Profile created in Step 3 (Create a Printer-media Profile Using Kodak ColorFlow Software for Improving Color Reproduction of the Final Print). 4) Once the conversion to printer RGB color space has been made, send the image to the printer using the standard printing procedures. Ensure that all possible color management controlled by the printer is turned off. This is because it is preferable to control the path from the computer image to the printer. In the Epson Stylus Photo 700 this is easily done by selecting ADVANCED MODE and then clicking on MORE SETTINGS. This brings up another dialog box in which the user can select NO COLOR ADJUSTEMENT in the Color Adjustment area.

Detailed Description Text (79):

In Adobe Photoshop go to FILE-NEW-RGB and create a set of one-inch square patches of equal RGB code values that vary in 10 code value increments from 0 to 255. A convenient way to do this is to:

Detailed Description Text (91):
B. Using a reflection densitometer read the reflection densities of the printed RGB patches and create a table of reflection densities vs. the green code values of the patches.